

CLAIMS

[c1] 1. An apparatus for transferring digital data at a high rate between a host device and a client device over a communication path for presentation to a user, comprising:

means for generating one or more of a plurality of pre-defined packet structures and linking them together to form a pre-defined communication protocol;

means for communicating a pre-selected set of digital control and presentation data between said host and said client devices over said communication path using said communication protocol;

means for coupling at least one host link controller residing in said host device to said client device through said communications path, the host link controller being configured to generate, transmit, and receive packets forming said communications protocol, and to form digital presentation data into one or more types of data packets; and

means for transferring data in the form of packets over said communications path using said link controllers.

[c2] 2. The apparatus of Claim 1 further comprising means for grouping said packets together within media frames for communication between said host and client, the media frames having a pre-defined fixed length with a pre-determined number of said packets have differing and variable lengths.

[c3] 3. The apparatus of Claim 2 further comprising:
means for negotiating between said host and client link drivers the use of one of a plurality of transfer modes in each direction, each allowing the transfer of different maximum numbers of bits of data in parallel over a given time period; and
means for dynamically adjusting between said transfer modes during transfer of data.

[c4] 4. The apparatus of Claim 1 further comprising means for commencing transfer of packets from said host with a Sub-frame Header type packet.

[c5] 5. The apparatus of Claim 1 further comprising means for transferring information between said host and client bi-directionally over said communications link.

- [c6] 6. The apparatus of Claim 1 further comprising means for transferring data from said host to said client for presentation to a client user using one or more Video Stream type packets for video type data, and Audio Stream type packets for audio type data.
- [c7] 7. The apparatus of Claim 1 further comprising means for transferring data from said client to said host using one or more Reverse Link Encapsulation type packets.
- [c8] 8. The apparatus of Claim 1 further comprising means for requesting display capabilities information from the client by a host link controller so as to determine what type of data and data rates said client is capable of accommodating through said interface.
- [c9] 9. The apparatus of Claim 8 further comprising means for communicating display or presentation capabilities from a client link controller to said host link controller using at least one Display Capability type packet.
- [c10] 10. The apparatus of Claim 1 wherein said communication path comprises a cable having a series of four or more conductors and a shield.
- [c11] 11. The apparatus of Claim 1 further comprising means for operating a USB data interface by each of said link controllers as a part of said communication path.
- [c12] 12. The apparatus of Claim 1 further comprising means for storing multimedia data to be transferred to said client device at said host.
- [c13] 13. The apparatus of Claim 1 further comprising means for generating Filler type packets by said host to occupy periods of forward link transmission that do not have data.
- [c14] 14. The apparatus of Claim 1 further comprising means for transferring interface-user defined data using User-Defined Stream type packets.

[c15] 15. The apparatus of Claim 1 further comprising means for transferring data to or from user input devices associated with said client device using Keyboard Data and Pointing Device Data type packets.

[c16] 16. The apparatus of Claim 1 further comprising means for terminating the transfer of data in either direction over said communication path using a Link Shutdown type packet for transmission by said host to said client.

[c17] 17. A communication system for transferring digital data at a high rate between a host device and a client device over a communication path, the system comprising:
a processor, said processor configured to generate one or more of a plurality of pre-defined packet structures and link them together to form a pre-defined communication protocol; to form digital presentation data into one or more types of data packets; communicate a pre-selected set of digital control and presentation data between said host and said client devices over the communication path using the communication protocol; and transfer data in the form of packets over the communications path.